3D22
THYRATRON
GAS TETRODE

GENERAL DATA

Electrical:
Heater, for Unipotential Cathode: [Min. Av. Max.]
Voltage (AC or DC) ....... 5.7 6.3 6.9 volts
Current, with heater volts = 6.3... 2.35 2.60 2.85 amp

Cathode:
Heating Time, prior to ... 30 - - sec
tube conduction ...
Outage Time, without reheating ... - - 3 sec

Direct Inter-electrode Capacitances (Approx.):
Grid No.1 to Anode ............... 0.1 μf
Input .................................. 7 μf
Output .................................. 3.6 μf

Without external shield, and with base shell floating.

Ionization Time (Approx.):
For conditions: dc anode volts = 100; grid-No.1 square-pulse volts = +100; and peak anode
amp. during conduction = 8 ...

Deionization Time (Approx.):
For conditions: dc anode volts = 125; grid-No.1 volts = -200, grid-No.1 resistor (ohms) =
1000; and dc anode amp. = 0.8 ...

For conditions: dc anode volts = 125, grid-No.1 volts = -14.8; grid-No.1 resistor (ohms) =
1000; and dc anode amp. = 0.8 ...

Maximum Critical Grid Current, with ac anode-supply
volts (rms) = 460, and average anode amp.
= 0.8 ...

Anode Voltage Drop (Approx.) ....... 10 volts
Grid-No.1 Control Ratio (Approx.) with grid-No.1
resistor (megohms) = 0 to 0.1; grid-No.2 re-
sistor (megohms) = 0; and grid-No.2 volts = 0 ...

Grid-No.2 Control Ratio (Approx.) with grid-No.1
resistor (megohms) = 0; grid-No.2 resistor
(megohms) = 0 to 0.1; and grid-No.1 volts
= -3 ...

Mechanical:
Mounting Position. .................. Any
Maximum Overall Length ............. 4-5/8"
Maximum Seated Length ............. 4"
Maximum Diameter .................. 2-3/8"
Bulb .................................. T-16
Base .................................. Medium-Metal-Shell Giant 7-Pin, Bayonet
Basing Designation for BOTTOM VIEW ........... 7BV

Pin 1-Heater .................. Pin 5-Grid No.2
Pin 2-Grid No.2 ................. Pin 6-Anode
Pin 3-Cathode .................. Pin 7-Heater
Pin 4-Grid No.1

AA' = PLANE OF ELECTRODES ←Indicates a change.

JUNE 15, 1948
TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY
RELAY and GRID-CONTROLLED RECTIFIER SERVICE

Maximum Ratings, Absolute Values:

PEAK ANODE VOLTAGE:
- Forward. .................................................. 650 max. volts
- Inverse. ..................................................... 1500 max. volts

GRID-No.2 (SHIELD-GRID) VOLTAGE:
- Peak, before anode conduction. ...................... -100 max. volts
- Average, during anode conduction* .................. -10 max. volts

GRID-No.1 (CONTROL-GRID) VOLTAGE:
- Peak, before anode conduction. ...................... -200 max. volts
- Average, during anode conduction* .................. -10 max. volts

CATHODE CURRENT:
- Peak ......................................................... 8 max. amp
- Average* .................................................... 0.8 max. amp
- Surge, for duration of 0.1 sec. max. ............... 30 max. amp

GRID-No.2 CURRENT:
- Average* .................................................... +0.1 max. amp

GRID-No.1 CURRENT:
- Average* .................................................... +0.05 max. amp

PEAK HEATER-CATHODE VOLTAGE:
- Heater negative with respect to cathode. .......... 100 max. volts
- Heater positive with respect to cathode. .......... 25 max. volts

AMBIENT TEMPERATURE RANGE. ....................... -75 to +90 °C

Maximum Circuit Values:

Grid-No.1-Circuit Resistance ......................... 2 max. megohms

* Averaged over any interval of 30 sec. max.

NOTE: Sufficient anode-circuit resistance, including tube load, must be used under all conditions of operation to prevent exceeding the current ratings of the tube.

3D22
THYRATRON

JUNE 15, 1948
OPERATIONAL RANGE
OF CRITICAL GRID VOLTAGE

TYPE 3D22
GRID-NO2 (SHIELD) VOLTS = 0
RANGES SHOWN ARE FOR TWO VALUES OF
GRID RESISTOR—0.1 MEG. AND 2 MEG.—AND
TAKE INTO ACCOUNT INITIAL DIFFERENCES
BETWEEN INDIVIDUAL TUBES AND SUBSEQUENT DIFFERENCES DURING TUBE LIFE,
FOR HEATER-VOLTAGE RANGE OF 5.7 TO
6.9 VOLTS, AND FOR AN AMBIENT TEMPERATURE RANGE OF -40 TO +90°C.

Range for
2 Megohms

Range for
0.1 Megohm

DC GRID-N°1 SUPPLY VOLTS
92CM-6483T2

AC ANODE VOLTS (RMS -60~)

JUNE 15, 1948
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CE-6483T2
AVG. CONTROL CHARACTERISTICS

$E_f = 6.3$ VOLTS
GRID-NO. 2 RESISTOR = 0 OHMS
GRID-NO. 1 RESISTOR = 0 OHMS

3D22

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92CM-6831
AVERAGE GRID CHARACTERISTICS DURING ANODE CONDUCTION

TYPE 3D22
- $E_g = 6.3$ VOLTS
- GRID-N#2 (SHIELD) VOLTS = 0
- GRID-N#2 RESISTOR (OHMS) = 0
- GRID-N#1 RESISTOR (OHMS) = 0

DC ANODE MA = 200
350
500
600
750

DC GRID-N#1 VOLTS
-10 -8 -6 -4 -2 0 +2

DC GRID-N#1 MILLIAMPERES
0 10 20 30 40 50

92CM-6830T

AVERAGE GRID CHARACTERISTICS BEFORE ANODE CONDUCTION

TYPE 3D22
- $E_g = 6.3$ VOLTS
- GRID-N#2 (SHIELD) VOLTS = 0
- GRID-N#1 RESISTOR (OHMS) = 0
- CONDUCTION STARTS

DC ANODE VOLTS = 600
200
400

DC GRID-N#1 MICROAMPERES
0 .004 .008

DC GRID-N#1 VOLTS
-16 -12 -8 -4 0

92CM-6865T

APRIL 15, 1947
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CE-6830T-6865T